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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/528,762	09/23/2005	Remy Bruno	0512-1268	4661
<small>466</small> YOUNG & THOMPSON 209 Madison Street Suite 500 ALEXANDRIA, VA 22314			<small>7590</small> EXAMINER LAO, LUN S	
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

## Application No.

10/528,762

## Applicant(s)

BRUNO ET AL.

## Examiner

LUN-SEE LAO

## Art Unit

2614

**Period for Reply** -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 22 March 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 37-73 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 37-73 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SE-US)  
Paper No(s)/Mail Date 03-22-2005
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Introduction***

1. This action is in response to the preliminary amendment filed on 03-22-2005. Claims 1-36 have been canceled and claims 37-73 have been added. Claims 37-73 are pending.

### ***Double Patenting***

2. Claims 37-73 provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1-35 of copending Application No. 10/505,852(US 2005/0238177). Although the conflicting claims are not identical, they are not patentably distinct from each other because Claims 37-73 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-35 and Application No. 10/505,852(US 2005/0238177). Although the conflicting claims are not identical, they are not patentably distinct from each other.

Consider claims 37-73, substantially all the claimed steps in these claims were recited in claims 1-35 of the patent application publication identified above, such as the steps of : " Method for processing a sound field representation in order to provide a representation modified by the application of this processing corresponding to at least spatial processing of the sound field, comprising: the establishment of an initial representation of the sound field in the form of a set of coefficients representative of that field in time and in the three spatial dimensions; and the establishment of a representation modified by filtering combinations that correspond to the processing

operation and that are applied to the coefficients of the initial representation, characterized in that it also comprises a step of defining the processing operation, which step comprises: a step of establishing a set of directivity functions which is representative of the processing operation, in the form of a set of coefficients corresponding to the decomposition of those functions on a basis of spherical harmonics; and a step of determining the filtering combinations on the basis of that decomposition for the implementation of a step of applying the filtering combinations so defined to the coefficients of the initial representation, in order to obtain the modified representation" (see Application No. 10/505,852, claims 1-35) (US 2005/0238177).

Because claims 37-73 of US patent application 10/528,762 are similar in scope to claims 1-35 of the patent application publication No. 10/505,852 (US 2005/0238177) with obvious wording variation, they are both describing to a set of coefficients representative of that sound field in time and in the three spatial dimensions. Claims 37-73 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-35 of the patent application publication Application No. 10/505,852(US 2005/0238177).

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

### ***Specification***

3. The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

**Arrangement of the Specification**

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

- (a) TITLE OF THE INVENTION.
- (b) CROSS-REFERENCE TO RELATED APPLICATIONS.
- (c) STATEMENT REGARDING FEDERALLY SPONSORED RESEARCH OR DEVELOPMENT.
- (d) THE NAMES OF THE PARTIES TO A JOINT RESEARCH AGREEMENT.
- (e) INCORPORATION-BY-REFERENCE OF MATERIAL SUBMITTED ON A COMPACT DISC.
- (f) BACKGROUND OF THE INVENTION.
  - (1) Field of the Invention.
  - (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
- (g) BRIEF SUMMARY OF THE INVENTION.
- (h) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
- (i) DETAILED DESCRIPTION OF THE INVENTION.
- (j) CLAIM OR CLAIMS (commencing on a separate sheet).
- (k) ABSTRACT OF THE DISCLOSURE (commencing on a separate sheet).

- (I) SEQUENCE LISTING (See MPEP § 2424 and 37 CFR 1.821-1.825. A "Sequence Listing" is required on paper if the application discloses a nucleotide or amino acid sequence as defined in 37 CFR 1.821(a) and if the required "Sequence Listing" is not submitted as an electronic document on compact disc).

### ***Drawings***

4. The drawings are objected to under 37 CFR 1.83(a). Figures 2-3 and 5-6 as filed consist primarily of blocks and numbers. Any structural details necessary for a proper understanding of the subject matter sought to be patented should be shown in the drawings. MPEP 608.02(d). Correction is required. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner,

the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

***Claim Rejections - 35 USC § 112***

5. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

6. Regarding claims 38, 39, 43-45, 51, 63, 64, 66, 68, 71, the phrase "all or part, one or other" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "all or part, one or other"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

7. Regarding claims 42 and 73 the phrase "all or some" renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "all or some"), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

8. Regarding claims 57, the phrase "and/or " renders the claim(s) indefinite because the claim(s) include(s) elements not actually disclosed (those encompassed by "and/or "), thereby rendering the scope of the claim(s) unascertainable. See MPEP § 2173.05(d).

***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

10. Claims 37-41, 44, 43, 58-60, and 62-69 are rejected under 35 U.S.C. 102(e) as being anticipated by Moorer(US PAT.6,904,152).

Consider claim 37 Moorer teaches method for processing a sound field representation in order to provide a representation modified by the application of this processing corresponding to at least spatial processing of the sound field (see figs. 1,3,9 and 10), comprising:

the establishment of an initial representation of the sound field in the form of a set of coefficients representative of that field in time (reads on , real time) and in the three spatial dimensions(see figs. 1 and 3); and

the establishment of a representation modified by filtering combinations (reads on equation (1)) that correspond to the processing operation and that are applied to the coefficients of the initial representation, characterized in that it also comprises a step of defining the processing operation(see col. 4 line 6-col. 5 line 40), which step comprises:

a step of establishing a set of directivity functions which is representative of the processing operation, in the form of a set of coefficients corresponding to the



decomposition of those functions on a basis of spherical harmonics(see col. 4 line 6-col. 5 line 40); and

a step of determining the filtering combinations on the basis of that decomposition for the implementation of a step of applying the filtering combinations so defined to the coefficients of the initial representation, in order to obtain the modified representation (see figs 1,3, 9 and 10 and col. 4 line 6-col. 7 line 63).

Consider claims 38 and 39, as base on 112 second paragraph problem state above, Moorer teaches characterized in that the step of determining a set of directivity functions comprises a sub-step for the direct determination of all or part of the set of directivity functions in one or other of a plurality of predetermined formats (S1-S5 in figs. 3 and 4 and see col. 6 line 12-col. 8 line 67); and characterized in that the step of determining a set of directivity functions comprises a sub-step for the automatic interpretation of a processing instruction permitting the automatic provision of all or part of the set of directivity functions in one or other of a plurality of predetermined formats, on the basis of the processing instruction(see figs. 3 and 4 and see col. 6 line 12-col. 8 line 67).

Consider claims 40 and 41 Moorer teaches characterized in that the set of directivity functions which is representative of the processing operation is expressed in accordance with one or other of a plurality of predetermined formats and in that the step of establishing a set of directivity functions comprises a sub- step of conversion, from the predetermined format, into a set of coefficients corresponding to the decomposition of those directivity functions on a basis of spherical harmonics(see figs. 3 and 4 and see col. 6 line 12-col. 8 line 67); and characterized in that the step (2) of defining the

processing operation also comprises a step of establishing a set of parameters for that processing operation(see figs. 3 and 4 and see col. 6 line 12-col. 8 line 67).

Consider claims 43 and 44, as base on 112 second paragraph problem state above, Moorer teaches characterized in that the step of establishing a set of parameters comprises a sub-step for the direct determination of all or part of the set of parameters (see figs. 3 and 4 and see col. 6 line 12-col. 8 line 67); and characterized in that the step of establishing a set of parameters comprises a sub-step for the automatic interpretation of a processing instruction permitting the automatic provision of all or part of the set of parameters on the basis of that processing instruction(see figs. 3 and 4 and see col. 6 line 12-col. 8 line 67).

Consider claims 58 -60 Moorer teaches characterized in that the step of determining the filtering combinations(reads on equation 1) comprises a sub-step of converting the filtering combinations represented in a predetermined format to provide filter parameters suitable for the parameterization of given filters with a view to performing the step of applying the filtering combinations(see figs. 3 and 4 and see col. 6 line 12-col. 8 line 67); and characterized in that the processing is spatial processing and in that the step of applying the filtering combinations comprises gain modifications applied to the coefficients of the initial representation(see figs. 3 and 4 and see col. 6 line 12-col. 8 line 67); and characterized in that the processing is spatial and frequency processing and in that the step of applying the filtering combinations comprises the application of filters varying as a function of the frequency to the coefficients of the initial representation(see figs. 3 and 4 and see col. 6 line 12-col. 8 line 67).

Consider claim 62. Moorer teaches device for processing a sound field representation in order to provide a representation of the sound field by applying this processing corresponding to at least spatial processing of the sound field, the device receiving as an input an initial representation of the sound field in the form of a set of coefficients which is representative of that field in time (reads on, real time and see col. 5 line 40-col. 6 line 40) and in the three spatial dimensions and providing as an output a representation modified by the filtering combinations corresponding to the processing applied to the coefficients of the initial representation, characterized in that it comprises means of defining the processing operation, comprising (see figs 1-3, 9 and 10):

means of establishing a set of directivity functions which is representative of the processing operation, in the form of a set of coefficients corresponding to the decomposition of those directivity functions on a basis of spherical harmonics (see col. 4 line 6-col. 5 line 40); and

means of determining the filtering combinations (reads on equation (1)) on the basis of that decomposition, for their use by filtering means receiving the coefficients of the initial representation as an input and providing the modified representation as an output (see figs 1, 3, 9 and 10 and col. 4 line 6-col. 7 line 63).

Consider claims 63 and 64, as based on 112 second paragraph problem state above, Moorer teaches characterized in that the means of defining the processing operation comprise a module for the direct acquisition of operating data for the device in one or other of a plurality of formats (S1-S5 in figs. 3 and 4 and see col. 6 line 12-col. 8 line 67); and characterized in that the means of defining the processing operation comprise a

module for the automatic interpretation of a processing instruction enabling operating data to be provided automatically in one or other of a plurality of predetermined formats(S1-S5 in figs. 3 and 4 and see col. 6 line 12-col. 8 line 67).

Consider claims 65 and 66, as base on 112 second paragraph problem state above, Moorer teaches characterized in that the operating data comprise the set of directivity functions which is representative of the processing operation(see col. 5 line 40-col. 7 line 63); and characterized in that the means of defining the processing operation comprise a conversion module suitable for converting the set of directivity functions from one or other of a plurality of predetermined formats into a set of coefficients corresponding to the decomposition of those directivity functions on a basis of spherical harmonics(See figs. 3, 4, 9, 10 and see col. 6 line 12-col. 8 line 67).

Consider claims 67 and 69 Moorer teaches characterized in that the operating data comprise a set of parameters for the processing operation(see col. 5 line 40-col. 7 line 63); and characterized in that the means of determining the filtering combinations comprise a module for calculating filtering combinations by linear combinations of the coefficients corresponding to the spherical harmonic-based decomposition of the directivity set representative of the processing operation(See figs. 3, 4, 9, 10 and see col. 6 line 12-col. 8 line 67).

Consider claim 68, as base on 112 second paragraph problem state above, Moorer teaches characterized in that the means of defining the processing operation comprise a module for calculating all or part of the set of parameters as a function of the nature of the processing operation (See figs. 3, 4, 9, 10 and see col. 6 line 12-col. 8 line 67).

***Claim Rejections - 35 USC § 103***

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 42, 45-48, 61 and 70 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moorer(US PAT. 6,904,152) in view of Elko et al. (US 2003/0147539).

Consider claim 42, as base on 112 second paragraph problem state above, Moorer does not explicitly teach characterized in that the set of parameters comprises all or some of the following parameters : a set of constants forming weighting coefficients and defined as a function of the nature of the processing operation; and a parameter specifying the limit order of operation of the method and corresponding to the desired mathematical precision limit.

However, Elko teaches characterized in that the set of parameters comprises all or some of the following parameters: a set of constants forming weighting coefficients and defined as a function of the nature of the processing operation; and a parameter specifying the limit order of operation of the method and corresponding to the desired mathematical precision limit (see figs 1-3 and page 3 [0049]-[0062]).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Elko into the teaching of Moorer to be implemented for orthogonal harmonic expansion.

Consider claim 45, as based on 112 second paragraph problem state above, Moorer as modified by Elko teaches characterized in that the step of establishing a set of parameters comprises a sub-step of calculating all or part of the set of constants as a function of the nature of the processing operation (in Elko, see figs 1-3 and page 3 [0049]-[0062]).

Consider claim 46 Moorer teaches characterized in that the step of determining the filtering combinations comprises at least one sub-step of calculating filtering combinations by means of linear combinations of the coefficients corresponding to the spherical harmonic-based decomposition of the set of directivity functions which is representative of the processing operation (see col. 4 line 6-col. 6 line 67).

Consider claim 47, Moorer as modified by Elko teaches characterized in that the sub-step of calculation by means of linear combinations uses the set of constants as weighting coefficients (in Elko, see figs 1-3 and page 3 [0049]-[0062]).

Consider claim 48 Moorer teaches characterized in that the result of the calculation sub-step forms directly the filtering combinations that are to be applied to the coefficients of the initial representation (see figs 1,3, 9 and 10 and col. 4 line 6-col. 7 line 63).

Consider claim 61 Moorer teaches characterized in that the sets of coefficients representative of the initial sound field representation (see figs 1-3, 9 and 10 and col. 4

line 6-col. 7 line 63); but Moorer does not explicitly teach that sets of coefficients called Fourier-Bessel coefficients.

However, Elko teaches characterized in that the sets of coefficients representative of the initial sound field representation and of the modified representation are sets of coefficients called Fourier-Bessel coefficients(see figs 1-3 and page 3 [0049]-[0062]).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Elko into the teaching of Moorer to can be implemented for orthogonal harmonic expansion.

Consider claim 70 Moorer does not explicitly teach characterized in that the operating data includes a set of processing parameters which comprises a set of constants and in that the module for calculation by linear combinations uses that set of constants as weighting coefficients.

However, Elko teaches characterized in that the operating data includes a set of processing parameters which comprises a set of constants and in that the module for calculation by linear combinations uses that set of constants as weighting coefficients (see figs 1-3 and page 3 [0049]-[0062]).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Elko into the teaching of Moorer to can be implemented for orthogonal harmonic expansion.

13. Claims 49-67 and 71-73 are rejected under 35 U.S.C. 103(a) as being unpatentable over Moorer(US PAT. 6,904,152) as modified by Elko et al. (US

2003/0147539) as applied to claims 37,41,42,46 above, and further in view of Gerzon (US PAT. 5,671,287).

Consider claims 49 and 50 Moorer as modified by Elko does not explicitly teach characterized in that the processing is convolution processing, and characterized in that the processing is windowing processing.

However, Gerzon teaches characterized in that the processing is convolution processing (see figs. 6 and 12, 23 and col. 21 line25-58, col.34 line 8-48), and characterized in that the processing is windowing processing (see figs. 6 and 12, 23 and col. 21 line25-58, col.34 line 8-48).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Gerzon into the teaching of Moorer and Elko to provide different stereo directions for different sound source and different frequency components should have the same location sound quality.

Consider claim 51, as base on 112 second paragraph problem state above, Moorer as modified by Elko does not explicitly teach characterized in that the processing comprises at least one distortion to be applied to the initial sound field representation, and in that all or some of the directivity functions determined during the step of establishing a set of directivity functions form a set of distortion pairs which is representative of the distortion, in the form of a set of coefficients corresponding to the decomposition of the distortion pairs on a basis of spherical harmonics.

However, Gerzon teaches characterized in that the processing comprises at least one distortion to be applied to the initial sound field representation, and in that all or some of



the directivity functions determined during the step of establishing a set of directivity functions form a set of distortion pairs which is representative of the distortion, in the form of a set of coefficients corresponding to the decomposition of the distortion pairs on a basis of spherical harmonics (reads on azimuthal harmonic)(see figs 6,12,14 and col. 20 line 25-col. 22 line 67).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Gerzon into the teaching of Moorer and Elko to provide a simple method of controlling the various parameters of pseudostereo effects for angular spread of sound sources.

Consider claims 52 and 53, Moorer as modified by Elko and Gerzon teaches characterized in that the processing comprises a first processing operation, which is referred to as nominal, and the distortion(s), the calculation sub-step providing filtering combinations corresponding to the nominal processing and the step of determining filtering combinations also comprising at least one sub-step of distortion by modifying the filtering combinations provided by the calculation sub-step, on the basis of the distortion pairs representative of the distortion, in order to provide the filtering combinations that are to be applied to the coefficients of the initial representation(in Gerzon, see figs 6,12,14 and col. 20 line 25-col. 22 line 67); and characterized in that the step of defining the processing operation also comprises a step of establishing a set of parameters, and the set of parameters comprises a parameter representative of the distortion effort, that is to say, specifying the resemblance between the processing to be

applied and the nominal processing(in Gerzon, see figs 6,12,14 and col. 16 line 14-col. 17 line 67).

Consider claims 54 and 55, Moorer as modified by Elko and Gerzon teaches characterized in that the processing comprises solely distortion(s), the step of determining the filtering combinations comprising at least one distortion sub-step providing filtering combinations solely on the basis of the distortion pairs representative of the distortion(s), in order to provide the filtering combinations that are to be applied to the coefficients of the initial representation(in Gerzon, see figs 6,12,14 and col. 20 line 25-col. 22 line 67, col.25 line 14-col. 26 line 65); and characterized in that it comprises a plurality of distortion sub-steps which are recursive with respect to one another, so that each distortion sub-step receives as an input the filtering combinations provided by the preceding sub-step(in Gerzon, see figs 6,12,14 and col. 20 line 25-col. 22 line 67).

Consider claim 56 , Moorer as modified by Elko and Gerzon teaches characterized in that the at least one distortion sub-step permits the determination of the filtering combinations corresponding to modifications to be carried out on portions of the initial representation that are not directly targeted by the distortion pairs(in Gerzon, see figs 6,12,14 and col. 20 line 25-col. 22 line 67).

Consider claim 57, as base on 112 second paragraph problem state above, Moorer as modified by Elko and Gerzon teaches characterized in that the processing is split into a plurality of elemental processing operations and in that at least the step of determining filtering combinations is repeated a plurality of times, the filtering combinations resulting from the various calculation and/or distortion sub-steps and

corresponding to the elemental processing operations being arranged amongst one another to form the filtering combinations that are to be applied to the coefficients of the initial representation (in Gerzon, see figs 6, 12, 14 and col. 20 line 25-col. 22 line 67, col. 25 line 14-col. 26 line 65).

Consider claim 71, as based on 112 second paragraph problem state above, Moorer as modified by Elko does not explicitly teach characterized in that the processing operation comprises at least one distortion, all or part of the set of directivity functions forming a set of distortion pairs corresponding to the distortion(s) to be applied to the initial representation, and in that the means of determining the filtering combinations also comprise a module for distortion by modification of the filtering combinations provided by the calculation module, on the basis of the distortion pairs, in order to provide the filtering combinations that are to be applied to the coefficients of the initial representation.

However, Gerzon teaches characterized in that the processing operation comprises at least one distortion, all or part of the set of directivity functions forming a set of distortion pairs corresponding to the distortion(s) to be applied to the initial representation, and in that the means (see fig. 6 (1R, 1L)) of determining the filtering combinations also comprise a module for distortion by modification of the filtering combinations provided by the calculation module (9 in fig. 6), on the basis of the distortion pairs, in order to provide the filtering combinations that are to be applied to the coefficients of the initial representation (see figs 6, 12, 14 and col. 20 line 25-col. 22 line 67, col. 25 line 14-col. 26 line 65).

Therefore it would have been obvious to one having ordinary skill in the art at the time the invention was made to combine the teaching of Gerzon into the teaching of Moorer and Elko to provide a simple method of controlling the various parameters of pseudostereo effects for angular spread of sound sources.

Consider claims 72 and 73, as base on 112 second paragraph problem state above, Moorer as modified by Elko and Gerzon teaches, characterized in that the processing operation comprises solely one or more distortions, all or part of the set of directivity functions forming a set of distortion pairs corresponding to the distortion(s) to be applied to the initial representation, and in that the means (see fig.6 (1R,1L)) of determining the filtering combinations comprise solely a distortion module (9 in fig.6), in order to provide the filtering combinations solely on the basis of the distortion pairs (in Gerzon, see figs 6,12,14 and col. 20 line 25-col. 22 line 67, col.25 line 14-col. 26 line 65); and characterized in that the processing comprises at least one distortion to be applied to the initial sound field representation, and in that all or some of the directivity functions determined during the step of establishing a set of directivity functions form a set of distortion pairs which is representative of the distortion, in the form of a set of coefficients corresponding to the decomposition of the distortion pairs on a basis of spherical harmonics (reads on azimuthal harmonic) (in Gerzon, see figs 6,12,14 and col. 20 line 25-col. 22 line 67, col.25 line 14-col. 26 line 65).

### ***Conclusion***

14. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Jot et al. (US PAT. 7,231,054) is cited to show other related method and system for processing a sound field representation.

15. Any response to this action should be mailed to:

Mail Stop \_\_\_\_ (explanation, e.g., Amendment or After-final, etc.)

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Facsimile responses should be faxed to:  
**(571) 273-8300**

Hand-delivered responses should be brought to:  
Customer Service Window  
Randolph Building  
401 Dulany Street  
Alexandria, VA 22314

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lao,Lun-See whose telephone number is (571) 272-7501. The examiner can normally be reached on Monday-Friday from 8:00 to 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivian Chin, can be reached on (571) 272-7848.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the Technology Center 2600 whose telephone number is (571) 272-2600.

Lao,Lun-See  
/LUN-SEE LAO/  
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